

CLAIM AMENDMENTS

- 1.(Currently amended) A thick, solid, transparent radiation sensitive device for monitoring radiation dose comprising at least one radiation sensitive material in a molded or shaped polymeric binder wherein said radiation sensitive material is capable of undergoing an observable change when contacted with radiation wherein the device is thicker than 100 microns and wherein the device ~~does not require the use of two radiation beams to determine the observable change~~ uses radiation from a single radiation beam to determine the change in the radiation sensitive material.

2-4.(cancelled)

- 5.(Previously presented) The thick, solid, transparent radiation sensitive device of claim 1, wherein said radiation sensitive material comprises at least one material selected from a diacetylene; a radiochromic dye; a pH sensitive dye; a leuco dye; a carbinol dye or a radiation sensitive complex.

- 6.(Previously presented) The thick, solid, transparent radiation sensitive device of claim 5 wherein said diacetylene comprises at least one compound selected from 2,4-hexadiyn-1,6-diol, 3,5-octadiyn-1,8-diol, 4,6-decadiyn-1,10-diol, 5,7-dodecadiyn-1,12-diol, tricos-10,12-diyneic acid, pentacos-10,12-diyneic acid, their derivatives, including 2,4-hexadiyn-1,6-bis (n-Hexylurethane); 2,4-hexadiyn-1,6-bis (n-pentylurethane); 2,4-hexadiyn-1-mono (n-pentyl-urethane)-6-mono (n-hexylurethane); 2,4-hexadiyn-1-mono (n-hexyl-urethane)-6-mono (phenyl acetate); 5,7-dodecadiyn-1,12-bis(n-butoxycarbonyl methylurethane) or co-crystallized mixtures thereof.

7. (withdrawn) The thick, solid, transparent radiation sensitive device of claim 5 wherein said radiochromic dye is selected from fuschin cyanide, hexahydroxy ethyl violet cyanide, pararose aniline cyanide, a tetrazolium dye including blue tetrazolium, tetrazolium violet, triphenyl tetrazolium chloride or mixture thereof.
- 8.(withdrawn) The thick, solid, transparent radiation sensitive device of claim 5 wherein said leuco dye is selected from leuco crystal violet, leuco malachite green or mixture thereof.
- 9.(withdrawn) The thick, solid, transparent radiation sensitive device of claim 5 wherein said carbinol dye is selected from malachite green carbinol base and p-roseaniline base.
- 10.(withdrawn) The thick, solid, transparent radiation sensitive device of claim 5 wherein said pH sensitive dye is selected from pentamethoxytriphenylmethanol, bromocresol purple, bromophenol blue or mixture thereof.
- 11.(withdrawn) The thick, solid, transparent radiation sensitive device of claim 1 wherein said radiation sensitive material is a complex of ammonium iron citrate.
- 12.(original) The thick, solid, transparent radiation sensitive device of claim 1 further comprising an activator.
- 13.(Previously presented) The thick, solid, transparent radiation sensitive device of claim 12 wherein said activator is selected from halocarbon, a halonium, a sulfonium, ethyl trichloroacetate, heptachloropropane, ethyltrichloroacetate, chloroacetic acid, chloropropionic acid, hexachlorocyclohexane, methyltrichloroacetimidate, trichloroacetic acid, trichloroacetamide, trichloro ethanol, trichloro methyl benzyl acetate, trichloro methyl propanol hydrate, trichloro propane, chlorinated polymers, diphenyliodonium

iodide, diphenyliodonium hexafluoroarsenate, diphenyliodonium chloride, trimethylsulfonium iodide, or triphenylsulfonium hexafluoroantimonate.

14-16.(canceled)

17.(original) The thick, solid, transparent radiation sensitive device of claim 1 wherein said binder is a polymerized monomer or oligomer.

18.(original) The thick, solid, transparent radiation sensitive device of claim 1 wherein said binder is a polymerized di or polyfunctional monomer or oligomer.

19.(canceled)

20.(Previously presented) The thick, solid, transparent radiation sensitive device of claim 1 wherein said binder is a polymer prepared by polymerization of a monomer or oligomer by radical or cationic polymerization process using an initiator, selected from olefins, vinyls, acrylates, methylmethacrylate, styrene₁ acrylic acid, oligomeric methylmethacrylate, methylacrylate₂ or polypropylenedimethacrylate.

21.(original) The thick, solid, transparent radiation sensitive device of claim 1 wherein said binder is a polymer prepared by initiating polymerization with UV and visible light.

22-26.(canceled)

27.(original) The thick, solid, transparent radiation sensitive device of claim 1 further comprising a solvent or a plasticizer.

28-29.(canceled)

30.(previously presented) The thick, solid, transparent radiation sensitive device of claim 27 wherein said solvent or plasticizer is chosen from butoxy-2-ethylstearate, butyrolactone, diethyl fumarate, dimethyl maleate, dimethylcarbonate, dioctyl phthalate, ethylene glycol

dimethyl ether, ethyl salicylate, polyethylene glycol dimethylether, propylene carbonate, triacetin, benzyl ether, dodecyl-1,2-methyl pyrrolidone, ethoxyethylacetate, ethylene glycol diacetate, ethyltrichloroacetate, methylpyrrolidone, methyl sulfoxide, polyethylene glycols of different molecular weight, dimethylformamide, cyclohexane, p-dioxane, tetrahydrofuran, p-xylene, dioctylphthalate or dibutylphthalate.

31.(original) The thick, solid, transparent radiation sensitive device of claim 1 further comprising a converter.

32.(original) The thick, solid, transparent radiation sensitive device of claim 31 a wherein said converter is a radio/electron luminescence or fluorescence phosphor which emits UV light, or lower energy X-ray or electrons when contacted with high energy X-rays, gamma rays, or electrons.

33.(original) The thick, solid, transparent radiation sensitive device of claim 1 wherein said device is self-supporting.

34.(canceled)

35.(original) The thick, solid, transparent radiation sensitive device of claim 1 wherein said device has a thickness larger than 0.1 millimeter.

36-37.(canceled)

38.(original) The thick, solid, transparent radiation sensitive device of claim 1 wherein said observable change is selected from color change, change in fluorescence, phosphorescence, change in paramagnetic or NMR relaxation rate, when exposed to said radiation, liquid to solid, solid to liquid, or change in transparency.

39.(Previously presented) The thick, solid, transparent radiation sensitive device of claim 1 further comprising at least one of a UV absorber and surfactant.

40.(canceled)

41.(Currently amended) A process of making a thick, solid, transparent radiation sensitive molded or casted shaped polymeric device for monitoring radiation dose prepared by polymerization of at least one monomer or oligomer containing at least one radiation sensitive material capable of developing or undergoing a color, fluorescence, or opacity change when exposed to UV, X-ray, gamma ray, electron, protons, alpha particles or neutron radiation activator wherein the device ~~does not require the use of two radiation beams to determine the change in the radiation sensitive material~~ uses radiation from a single radiation beam to determine the change in the radiation sensitive material.

42.(canceled)

43.(Previously presented) A process of making a thick, solid, transparent radiation sensitive molded or casted shaped polymeric device for monitoring radiation dose prepared by solidification of molten polymer containing at least one radiation sensitive material capable of developing or undergoing a color, fluorescence, or opacity change when exposed to radiation.

44-66.(canceled)

67.(canceled)

68. (Currently amended) A thick, solid radiation sensitive device for monitoring in three dimensions a dose or its distribution from a radiation source having energy higher than that of UV light passing through a solid thicker than 100 microns which comprises at least one binder in

which at least one radiation sensitive material is dissolved or dispersed, wherein the binder is glass or plastic and is transparent, translucent or opaque and wherein the image created by the radiation source ~~does not require two beams~~ uses a single beam for determining the dose distribution.